Claims

1. A viral vector expressing a nucleic acid encoding 5T4 antigen.

2. A vector according to claim 1 which is a poxvirus vector.

3. A vector according to claim 2 which is ~~MVA~~ Modified Virus Ankara (MVA).

4. An expression vector which encodes and expresses 5T4 antigen.

5. A modified 5T4 antigen.

6. A modified antigen according to claim 5, which is a peptide epitope of 5T4 antigen which induces a CTL response.

7. A modified 5T4 antigen according to claim 6, capable of binding more efficiently to an HLA molecule than the unmodified epitope, and thus capable of inducing a more efficacious CTL response.

~~8. A modified 5T4 antigen according to claim 7, selected from the group consisting of HMADMVTWL and NLLEVPADL.~~

9. A vaccine composition comprising a 5T4 antigen as the immunising agent.

~~10. A vaccine composition according to claim 9, further comprising one or more adjuvants.~~

11. A vaccine composition according to claim 9 or claim 10, wherein the 5T4 antigen is a modified 5T4 antigen according to any one of claims 5 to 8.

12. A method for eliciting an immune response in a subject, comprising the steps of immunising the subject with a 5T4 antigen.

13. A method for eliciting an immune response in a subject, comprising the steps of immunising the subject with a nucleic acid encoding 5T4 antigen, and expressing the 5T4 antigen in the subject.

14. A method according to claim 12 or claim 13, wherein the 5T4 antigen is a modified 5T4 antigen according to any one of claims 5 to 8.

15. A method for eliciting an immunotherapeutic response in a subject, comprising the steps of immunising the subject with a nucleic acid encoding 5T4 antigen, and expressing the 5T4 antigen in the subject

16. A method according to any one of claims 12 to 15 wherein the immune response is a CTL response or an antibody response.

17. Use of 5T4 antigen in the preparation of a composition for the immunotherapy of a tumour in a subject.

18. Use of 5T4 antigen in the preparation of a composition for the breaking of immune tolerance to 5T4 antigen in a subject.

19. Use of 5T4 antigen in the preparation of a composition for the sterilisation of a subject.

20. Use according to any one of claims 17 to 19, wherein the 5T4 antigen is delivered by means of a viral vector according to any one of claims 1 to 3.

21. Use according to any one of claims 17 to 20, wherein the 5T4 antigen is a modified 5T4 antigen according to any one of claims 5 to 8.

22. A vector encoding 5T4 antigen and an agent capable of binding 5T4 fused with an immunostimulatory molecule, for separate, simultaneous separate or combined use in the treament of tumours.

23. A vector encoding 5T4 antigen and a prodrug/enzyme combination, for separate, simultaneous separate or combined use in the treament of tumours.

24. A recombinant poxvirus vector from which at least one immune evasion gene has been deleted, which comprises a nucleic acid sequence encoding a ~~tumour~~ tumor associated antigen (TAA).

25. A vector according to claim 24, wherein all the immune evasion genes have been deleted.

26. A poxvirus vector having a reduced lytic activity, which comprises a nucleic acid sequence encoding a TAA.

27. A poxvirus vector having a reduced lytic activity and from which at least one immune evasion gene has been deleted, which comprises a nucleic acid sequence encoding a TAA.

28. A vector according to any of claims 24 to 27 which is not MVA.

29. A vector according to any one of claims 24 to 28 which is replication deficient.

30. A vector according to any one of claims 24 to 29, wherein the TAA is selected from the group consisting of melanoma-associated antigens (MAAs), melanocyte differentiation antigens such as MART-1 and gp100, MAGE-1, MAGE-3, CEA, tyrosinase, mutant ras and p53, CA-125, PSA, c-erbB2 and 5T4.

31. A vector according to claim 30, wherein the TAA is 5T4.

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32. A method for eliciting an immune response in a mammal, comprising administering to the mammal a recombinant poxvirus vector according to any one of claims 24 to 31, thereby eliciting an immune response to the TAA in the mammal.

33. A method according to claim 32, wherein the immune response is a CTL response.

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34. A method according to claim 32 or claim 33, wherein the TAA is heterologous to the mammal.

35. Use of a recombinant poxvirus vector according to any one of claims 24 to 31, to elicit an immune response in a mammal against a TAA.

36. Use of a recombinant poxvirus vector from which at least one immune evasion gene has been deleted, which comprises a nucleic acid sequence encoding a weak immunogen, to break immune tolerance in a mammal against the weak immunogen and elicit an immune response thereto.

37. Use of a professional antigen presenting cell (APC) to enhance immunity to a 5T4 antigen.

38. Use according to claim 37 wherein the APC is a dendritic cell.

39. Use according to claim 38 wherein the 5T4 antigen is a modified 5T4 antigen.

40. An antigen and a vector substantially as described and with reference to the accompanying Figures.

add A7

add B1